



# UNITED STATES PATENT AND TRADEMARK OFFICE

W

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,257	09/08/2003	Mihai Vladimirescu	8989-031	8597

1059 7590 04/13/2004

BERESKIN AND PARR  
SCOTIA PLAZA  
40 KING STREET WEST-SUITE 4000 BOX 401  
TORONTO, ON M5H 3Y2  
CANADA

EXAMINER

ROJAS, BERNARD

ART UNIT	PAPER NUMBER
----------	--------------

2832

DATE MAILED: 04/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/656,257

Applicant(s)

VLADIMIRESCU ET AL.

Examiner

Bernard Rojas

Art Unit

2832

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12102003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 and 7 rejected under 35 U.S.C. 102(b) as being anticipated by Fisher [US 6,040,752].

Claim 1, Fisher discloses a linear switch actuator [figure 4 and 6] comprising:

(a) a ferromagnetic shield [soft iron yoke 44] having an interior region and first and second apertures [figure 4];

(b) a magnetic coil [43] having a longitudinal axis and positioned within the interior region of said shield and adapted to receive an energizing current:

(c) a moveable armature assembly [40, 41, 42] adapted to be coupled to the movable element [figure 4] and positioned along the longitudinal axis of said coil and extending through the first and second apertures of the shield, the armature assembly being moveable between a first stroke end position [figure 4] and a second stroke end position [figure 6], the armature assembly comprising:

(i) a ferromagnetic rod [40] having a first end and a second end;

(ii) a first permanent magnet [41] coupled to said first end of the rod and positioned within the first aperture, the first permanent magnet having

substantially a first pole orientation and being positioned outside said shield at the first stroke end position [figure 4];

(iii) a second permanent magnet [42] being coupled to the second end of the rod and positioned within said second aperture and having a second pole orientation opposite to that of the first pole orientation, the second permanent magnet and being positioned substantially outside said shield at the second stroke end position [figure 6];

(d) such that when the armature assembly is positioned at one of the first and second stroke end positions, the magnetic permeance associated with the armature assembly is maximized due to one of said first and second permanent magnets being positioned substantially outside said shield, resulting in bi-stable latching between said first and second stroke end positions [col. 4 lines 14-35].; and

(e) such that when said energizing current is applied to the coil, the armature assembly moves between the first and second stroke end positions due to the combination of the force exerted on the armature assembly due to the magnetic interaction between said energized coil and the field associated with the first and second permanent magnets and the solenoid magnetic field associated with the coil which reduces the magnetic permeance associated with said armature assembly [col. 4 lines 37-55].

Claim 2, Fisher discloses an actuator with an actuator piston [40] coupled to one of the first and second permanent magnets, the actuator piston being adapted to engage said movable element [figure 4, 6].

Claim 3, Fisher discloses that the shield includes a first ferromagnetic end plate [left side of 44] containing said first aperture [figure 4] and a second ferromagnetic end plate [right side of 44] containing said second aperture [figure 4].

Claim 4, Fisher discloses that the first and second permanent magnets are oriented such that the magnetic bias of each of said first and second permanent magnet is oriented axially with respect to the longitudinal axis of said coil [figure 4].

Claim 5, it is inherent that the linear actuator of Fisher include a current source coupled to the coil in order to produce the required actuation currents shown in figures 5a and 5b. The current source being adapted to energize the coil by providing the energizing current to the coil in a first direction [figure 5a or 5b].

Claim 7, it is inherent that the linear actuator of Fisher include a current source coupled to the coil in order to produce the required actuation currents shown in figures 5a and 5b. The current source being adapted to energize said coil by providing the energizing current to the coil in first [figure 5a] and second [figure 5b] directions such that the actuator operates in a bi-polar manner.

### ***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

Art Unit: 2832

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher [US 6,040,752].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a bifilar wire in order to create a coil that can be energized in the clockwise and counter-clockwise orientation using the same control pulse on either of the two wire strands. The benefit in this arrangement is that this type of coil would be require a much simpler control circuit as only on type of actuation pulse is needed, thereby reducing manufacturing cost.

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Rojas whose telephone number is (571) 272-1998. The examiner can normally be reached on M-F 8-4:00), every other Friday off.

Art Unit: 2832

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Br

  
KARL D. EASTHOM  
PRIMARY EXAMINER